Museum of Science

EiE

OUT-OF-SCHOOL SETTINGS | GRADES 6–8

Go Fish: Engineering Prosthetic Tails

Unit Overview

Sometimes animals need our help! Just like humans, other animals can regain the function of a missing limb with the aid of a prosthetic device. Youth participating in this unit will become biomechanical engineers as they use the Engineering Design Process to design prosthetic devices for a variety of animals.

Engineering Application/Unit Goals

Biomechanical engineers apply mechanical engineering to biological and medical issues. Within this field, engineers work on projects such as engineering artificial limbs, joint replacements and designing safety equipment. Youth learn about important factors to keep in mind when designing prosthetic devices as they engineer a model leg for an elephant and a model beak for an eagle. Youth then use what they have learned to engineer a model prosthetic device for a fish.

Engineering Everywhere®

Engineering Everywhere inspires learners in grades 6-8 to shape the world around them. Our twelve hands-on units were tested in afterschool, summer camp, and out-of-school time settings, and they are proven to engage learners in innovative problem solving. Each unit begins with a Special Report video, which sets the context for the engineering design challenge and explores problems like food scarcity, prosthetics, and disease control. As learners work through our design challenges, they'll sharpen 21st century skills like critical thinking, teamwork, and communication, preparing them for success in school and in life.

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Unit Map

Prep Activity 1: What is Engineering?

Youth are introduced to engineering as they work in groups to engineer a life vest for a model dog.

Prep Activity 2: What is Technology?

Youth play a quiz game to explore technologies. Then, they are introduced to their design challenge.

Activity 1: A Leg to Stand On

Youth engineer a model prosthetic elephant leg.

Activity 2: Peck It Up

Youth engineer a model prosthetic beak.

Activity 3: Create a Prosthetic Tail

Youth engineer a model prosthetic fish tail.

Activity 4: Improve a Prosthetic Tail

Youth improve a model prosthetic fish tail.

Activity 5: Something's Fishy

Youth select characteristics for their own fish species and develop exhibit signs.

Activity 6: Engineering Showcase

Youth communicate their work with visitors by hosting an exhibition.